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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,116	11/18/2003	Bulent M. Basol	NT-021D-US	6101

7590 07/13/2005

Legal Department
Nu Tool, Inc
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EXAMINER

DEO, DUY VU NGUYEN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,116

Applicant(s)

BASOL ET AL.

Examiner

DuyVu n. Deo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/22/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8-11, 14-16, 18, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (US 5,876,266).

Miller describes a system for removing a first material, such as metal, located on a top surface of a workpiece comprising: a pad position proximate to the workpiece so that the front surface of the pad contacts the exposed surface of the first material, the pad comprising a second material, microcapsules, which contains oxidizing and reducing agents, ammonium compounds, or slurry (col. 1, line 14-26, 45-48; col. 3, line 40-45; col. 7, line 21-32; col. 8, line 59-67; col. 9, line 16-33); a rotating platen 62 for rotation by a drive motor 64 for mechanically moving the pad front surface against the exposed surface of the first material, this would initiate a chemical reaction between the first material and the second material to yield a reaction product (col. 3, line 35-45-col. 8, line 65-col. 9, line 15); a chemical solution to remove the reaction product and not substantially attacking other materials involved in the process (col. 1, line 59-65; col. 2, line 40-52), this would read on claimed the first and second material not being substantially soluble into the chemical solution.

The apparatus further include a wafer carrier or holder to produce a relative motion between the pad and the workpiece (col. 1, line 50-55; col. 3, line 23-35).

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Referring to claims 10, 11, 18, 19, the pad further comprises of abrasives, and other chemical agents that would capable of removing or dissolve the reaction products (col. 7, line 21-33).

Referring to claims 14-16, the workpiece holder can rotate, have transverse movements or vertical or lateral movements (fig. 1; col. 3, line 22-35); therefore, it would be capable to vibrate without contacting the pad and maintain a distance between the workpiece surface and the pad. Since the workpiece is not in contact with the pad, it would stop the chemical reaction between the first material and the material on the pad.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller as applied to claim 9 above, and further in view of Kaufman et al. (US 5,954,997).

Unlike claimed invention, Miller doesn't describe the metal layer on the workpiece is copper. However, copper is known to one skilled in the art at the time of the invention for forming integrated circuit as shown here by Kaufman. The copper is polished by CMP (ab.; col. 3, line 1-col. 4, line 9). It would have been obvious to one skilled in the art at the time of the invention in light of Kaufman to polish the metal layer such as copper with Miller's system to form an integrated circuit with a reasonable expectation of success.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 8-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is unclear where the specification teaching of these limitations:

Claim 8: “means for mechanically moving the front surface of the pad against the exposed surface of the first material to initiate a chemical reaction between the first material and the second material, the chemical reaction yielding a reaction product”

Claim 11, “the pad removes the reaction products”

Claim 12, “the pad is configured with strips of the first material and strips of abrasive material”

Claims 9, 14-16, “a workpiece holder configured to hold the workpiece and produce relative motion between the pad and the workpiece to create a reaction product from a chemical reaction between the first material and the material on the surface of the workpiece”, “the workpiece holder vibrates without contacting the pad”, “the workpiece holder is configured to rotate, move vertically, or laterally with respect to the pad”, and “the workpiece holder maintains

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a predetermined distance from the pad to automatically stop the chemical reaction between the first material and the material on the surface of the workpiece”

Claim 17, “the apparatus further comprises a second pad configured to polish the reaction product and the material on the surface of the workpiece to planarize the surface”

Claim 18, the solution dissolves the reaction product.

Drawings

7. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Primary Examiner

Duy-Vu N. Deo

7/11/05

